Title: The SRTM Mosaic Processor
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Abstract:
The Shuttle Radar Topography Mission radar processor produces
high-resolution (15m) image, height, and correlation data in a
coordinate system natural to the strips acquired along the
SRTM ground track. These overlapping data strips must be
combined and interpolated onto the more familiar geographic
latitude/longitude grid for the final output DEM. In addition,
there may still be small, long wavelength residual errors in the
strip data that may be reduced by incorporating tiepoints and
ground control points. The Mosaic Processing Subsystem of the
SRTM processor accomplishes both of these tasks. Continent-scale
bundle adjustment is done by a sequential least-squares algorithm
which derives corrections to the baseline length and differential
phase by forcing tie points to the same position and strip data
heights to the GCP values at the GCP position. Output DEM values
are derived from nearby strip values, weighted by their inverse local
height variances. Continent-scale simulation results will be presented
to validate the performance of the algorithms.